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MALARIA MAKING DRAMATIC COMEBACK

by Andrew Williams

OTTAWA, IDRC -- Malaria cases in India in 1961 plummeted to 50 000 from an estimated 100 million 10 years earlier. The story was repeated worldwide with optimism, and scientists were forecasting the end to this common but crippling disease.

Today, the celebrations seem terribly premature. There are an estimated 150 million new malaria cases each year and as many as 800 million people may be suffering from the disease.

What caused the sudden reversal?

The disease is caused by single-celled parasites transmitted to humans by the female anopheles mosquito. The mosquito acquires the parasite after biting an infected person. Attempts to eradicate the disease have focused on trying to break the transmission cycle. Public health officials were confident they could succeed in doing so by reducing the mosquito population through insecticides, such as DDT, or by eliminating the parasite in infected persons through drugs.

DDT was not a miracle cure. Mosquitoes reproduce so quickly -- five generations in ten weeks -- that they quickly adapted to the pesticide and to other treatments. Today, serious resistance problems affect more than one-third of the malaria programs around the world.

Antimalarial drugs failed for similar reasons. A new strain of malaria emerged that was resistant to the two most effective drugs used to prevent

malaria: chloroquin and sansidar.

The confident assumption of the 1960s that malaria would be soon eliminated was not based only on the use of pesticides and drugs. Millions of dollars were being spent on drainage and oil spraying of the swampy breeding grounds of the mosquito.

Then, just when victory was in sight, many governments relaxed their vigilance, believing that malaria was no longer a serious health problem. Public spending was cut back and international agencies, such as the World Health Organization (WHO), responded by reducing their financial assistance by half between the mid-1960s and the mid-1970s. As humans slackened their efforts, the mosquitoes redoubled theirs, and malaria made a comeback.

As the renewed spread of the disease gained recognition in the late 1970s, so the financial support of malaria control increased. Health officials are now looking for new weapons in the battle with the mosquito and the malaria parasite.

In Kenya, an area where malaria deaths have increased dramatically, Canada's International Development Research Centre (IDRC) is funding a study by the University of Nairobi on the knowledge, attitudes and practices of people in the community towards malaria.

The insights offered by this new area of research will be an important factor in mobilizing the population in the fight against the disease.

An educational campaign at the community level is essential to any eradication strategy. A recent conference on malaria in Tanzania blamed lack of public cooperation for the failure to destroy mosquito breeding grounds.

Two new drugs that offer some hope of eliminating the parasites in malaria victims are mefloquine and an ancient Chinese remedy called qinghaosu. But research efforts must go on if these drugs are to be tested and developed quickly.

In addition, the development of a vaccine (which creates an immunity to the

disease) is under way. Although scientists report some successes with injections of killed malaria parasites or genetically engineered bacteria, a long-lasting vaccine from a single innoculation is still far away. In both cases, vast sums of money will be needed to complete research.

STERILE MOSQUITOES

Back in the 1970s, research at the Amani Malaria Research Institute in Tanzania indicated that certain harmless mosquitoes could be bred whose larvae would eat the larvae of the malaria-carrying anopheles mosquitoes. Such a program is about to be tried out in Kenya.

Another recently proposed program would involve releasing millions of irradiated, sterile mosquitoes into high-malaria areas. This would result in a second generation of sterile insects.

But the costs are high since billions of sterile mosquitoes would have to be produced and released over large areas of Africa and Asia.

The cost of such protection from malaria would be $2 per person per year. In many countries such as India, Pakistan and Ethiopia, this would be more than the per capita health spending for all health services.

A cheaper, older method of controlling mosquitoes is to reduce their breeding grounds. Ditching through marshes to bring mosquito larvae into open water where they can be eaten by fish is a method proposed by WHO. Because it requires only manpower -- a resource readily available in the Third World -- it is cheap and effective.

But malaria is primarily a disease of the poor who cannot afford mosquito - proof houses and netting. If the disease is to be controlled, land reform, better sanitation, improved housing, nutrition, and economic development must occur.

Ironically, some development projects such as irrigation and road-building have encouraged the breeding of mosquitoes and the spread of malaria. Likewise, the temporary reduction of malaria-carrying mosquitoes in the swampy areas of

Africa, Asia and Latin America opened them up to settlement and farming. With the reemergence of the mosquito, settlers in these areas are once again exposed to the disease.

While public health authorities now talk of "controlling" malaria, rather than "eradicating" it, it will take a major commitment of money, time and willpower to regain the ground lost to the disease in the last 20 years.

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